Appendix 3-5

Ventilation Plan

U. S. Department of Labor

Mine Safety and Health Administration
P O Box 25367
Denver, Colorado 80225

Coal Mine Safety and Health
District 9

April 7, 1987

Andrew C. King
Company Official
Genwal Coal Company
P.O. Box 1201
Huntington, UT 84528

RE: Crandall Canyon Mine
ID No. 42-01715
Ventilation System and Methane
and Dust Control Plan Amendment

Dear Mr. King:

The enclosed plan amendment received April 3, 1987, consisting of MMU 003-0 (2nd West and North Mains) dust control practices in the face area and water spray diagram is approved in accordance with 30 CFR 75.316. The amendment will be incorporated into the currently approved plan. If compliance with the respirable dust and ventilation requirements is not maintained, the plan will have to be revised.

If you have any questions please contact Steve Miller at 303/236-2743.

Sincerely,

John W. Barton
District Manager

Enclosure

APPROVED CMS & H APR 7 '87

DUST CONTROL PRACTICES IN THE FACE AREA

Date 3/30/87

Mine Name: Crandall Canyon No.1

Mine ID No.: 42-01715

MMU ID No.: 003-0

EQUIPMENT: JOY 12CM3 SERIAL # JM2398CM3

LOCATION: 2ND WEST AND NORTH MAINS (used primarily in low coal)

Designated Occupation (D.O.): 036

The following parameters are hereby adopted as part of the ventilation system and methane and dust control plan as per section 75.316, 30 CFR.

Signature Company Official

The minimum mean entry velocity maintained in the working place or the minimum face velocity maintained across the longwall face shall be 60' per minute.

The maximum distance the ventilating device is maintained from the area of deepest penetration of the working face shall be 15 feet. (longwalls not applicable).

The minimum quantity of air reaching the working face or longwall shall be 6,000 CFM.

The minimum air quantities entering the intake end of a pillar line or the last open cross cut will be 9,000 CFM.

The feeders will not have water sprays located on them.

The feeder breakers will have one spray located in such a manner to spray the breaker bar when the breaker bar is located in such a manner that is produces dust from the crushing operation.

The minimum air quantities reaching an idle face will be perceptible air movement to maintain the methane content below 1%.

The ventilating devices will be within 20' of an idle face.

APPROVED CMS & H APR 7 '87

The following water suppression system shall be maintained and operated as follows:

Equipment Description	No. of Sprays	Type of Sprays	Minimum Pressure
Joy 12 CM Miner	38	Joy	75

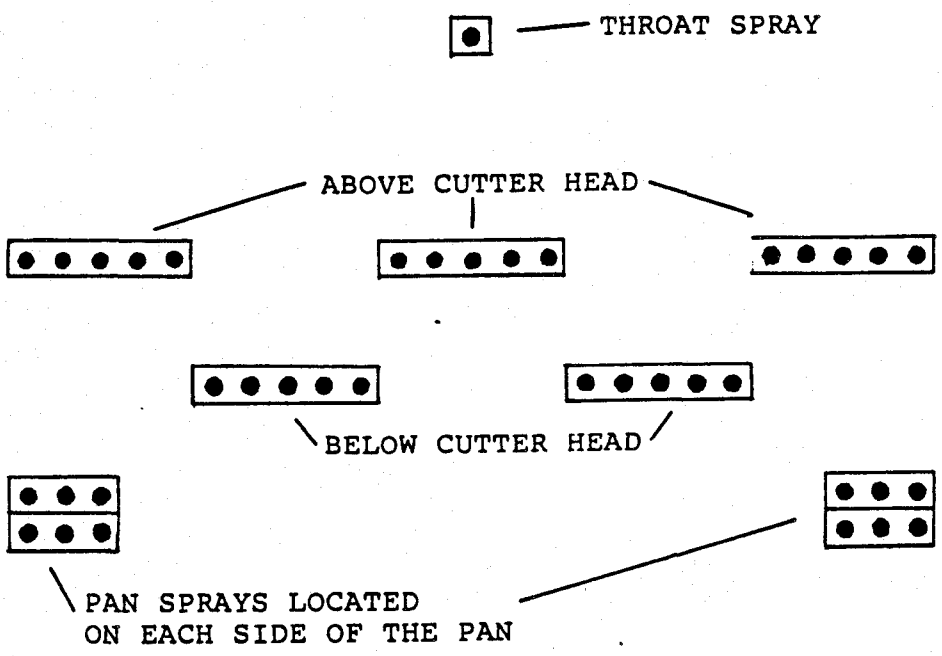
At least 90% of the sprays indicated for dust suppression on each piece of equipment shall be maintained in an operable condition.

On spray blocks of 3 or less all sprays within that block will be operating prior to entering the next cut. (A block is designated as sprays located in the same area to provide coverage to that specific area and not necessarily located in the same physical holder).

APPROVED CMS & H APR 7 '87

GENWAL COAL COMPANY
CRANDALL CANYON MINE

SPRAY LOCATIONS
MMU ID. 003-0



TOTAL SPRAYS - 38

90% REQUIRED TO BE OPERATING - 34

JANUARY 6, 1986

VENTILATION PLAN

CRANDALL CANYON MINE

MSHA ID # 42-01715

GENWAL COAL COMPANY

P.O.BOX 1201

HUNTINGTON, UTAH

84528

VENTILATION PLAN

I. GENERAL

1. COMPANY NAME: GENWAL COAL COMPANY, INC

   MINE NAME: CRANDALL CANYON MINE NO. 1

   POST OFFICE ADDRESS: P.O.BOX 1201
   HUNTINGTON, UTAH 84528

   TELEPHONE NUMBER: 801-687-9813

   IDENTIFICATION NUMBER: 42-01715

   OPERATORS NAME: GARY SORENSEN

   OPERATORS TITLE: MINE SUPERINTENDENT

   OPERATORS ADDRESS: same as above

   OPERATORS TEL. NUMBER: same as above

2. LIFE OF THE MINE IS GREATER THAN 1 YEAR

3. NUMBER OF EMPLOYEES:

SURFACE	3
UNDERGROUND	24
TOTAL	27

4. COAL SEAM: HIAWATHA
   HEIGHT: 5.5' - 7.5'

5. EQUIPMENT:

FACE:	1	JOY 12 CM CONTINUOUS MINER	
	2 ea.	10 AND 21 SC SHUTTLE CARS	
	1	S&S BATTERY SCOOP	
	2	LEE NORSE ROOF BOLTERS	
	1	STAMLER FEEDER BREAKER	
	1	JOY FACE DRILL	
	1	JOY CUTTING MACHINE	
	1	JOY LOADER	
OTHER:	1	EIMCO MINETENDER	17 ~~50~~ HP
	2	FARM TYPE TRACTORS	~~40~~ HP
			44, 28

VENTILATION SYSTEM

A. MAIN FANS

1. Joy

2. 50 HP

3. OPERATING SPECIFICATIONS

a. RPM
b. BLADE SETTING
c. WATER GAGE
d. VOLTAGE 440 V.

4. FAN CURVES

NOT AVAILABLE

5. All main fan installations shall meet or exceed the criteria in Sections 75.300-2 and 75.300-3, 30 CFR, unless a variance is granted by the District Manager.

6. All stand-by fan motors will first be approved before being utilized and their operating specifications incorporated into this plan.

B. FACE MINING CYCLE

SEE DRAWING A

C. SECTION MINING CYCLE

SEE DRAWINGS B, B1

D. TYPICAL SECTION VENTILATION SYSTEM

SEE DRAWINGS B, B1, C

E. AUXILIARY FANS AND DIFFUSERS

NOT APPLICABLE

F. CONSTRUCTION OF VENTILATION DEVICES

1. All ventilating devices such as stoppings, overcast, undercasts, shaft partitions, etc., shall be of substantial and incombustible construction,

installed in a workmanlike manner and maintained in a condition to serve the purpose for which they were intended.

2. Permanent stoppings shall be erected between the intake and return aircourse and shall be maintained to and including the third connecting crosscut outby the faces of the entries. Whenever the third connecting crosscut is broken through, work shall be started on building the stopping as soon as possible and shall be continued in a reasonable and diligent manner until completed. Similarly, whenever a belt move is completed, temporary brattice shall be installed immediately and work shall be started building the permanent stoppings as soon as possible and shall be continued in a diligent manner until completed.

3. CONSTRUCTION DETAILS

STOPPINGS:

All stoppings will be constructed on a clean and substantial bottom, tied to the ribs, and staggered courses. Blocks with mortared joints will be plastered around the periphery to make them airtight. Stoppings with a short life span, less than 2 years, will be layed without mortared joints (Dry Stacked) and plastered on one side (pressure side) with an approved construction sealant at least 1/8" thick. These dry stacked stoppings will be located in sub-mains, panels and rooms. Stoppings of longer life, typically located in the mains, will have mortared joints and plastered on one side, or dry stacked and plastered on both sides with a minimum of 1/8" thick approved mortar, cement or equivalent. Metal stoppings (Kennedy type) supported with either wood and metal angle iron may be used in areas of short life, panels and rooms. Timbers laid longitudinally, skin to skin and packed with rockdust may be used in heavy or squeezing areas. See drawing D.

Materials: Hollow cinder or cement block
Mortar or cement mix or equivalent
Timber, caps and wedges
Fire retardant
Kennedy type Stoppings

Note: Any wood material used in the construction of stoppings will be coated with an approved fire retardant.

SEALS: Seals will be constructed of 2 rows of solid cinder or cement block and the joints will be mortared and plastered on one side, the out-by side. Each seal will contain a gas check pipe w/valve extending 15' inby the seal at the top and a 4" drain and pressure relief pipe with flame arrestor installed at the bottom of the stopping. See drawing D.

OVERCASTS AND UNDERCASTS: All wing walls will be constructed with the same criteria as the stoppings. The tops of the overcasts will be constructed with I or H beams and sheet metal or precast concrete. The overcasts will be constructed so as to support the weight of several men. Also precast corrugated metal overcasts designed for this purpose may be used. Where designated as escapeways overcast will be constructed in order to maintain unrestricted escape. See drawing E.

REGULATORS: Regulators will be constructed in the same manner as stoppings with the addition of a sliding metal door to adjust airflow. In temporary situations blocks may be removed in order regulate airflow.

III. METHANE CONTROL

A. FACE AREAS

1. Line brattice or any other approved device used to provide ventilation to the working face from which coal is being cut, mined, or loaded shall be installed at a distance no greater than 15' linear feet from the point of deepest penetration to which any portion of the face has been advanced.

2. A minimum quantity of 6,000 CFM of air shall reach each working face from which coal is being cut, mined, or loaded. The minimum mean entry face velocity will be 60 feet per minute.

3. The minimum air reaching abandoned or idle faces will be maintained at 3,000 CFM. The line curtain will be maintained within 20' of the face or if roof bolting is being done in the face, within 5' of the cab of the roof bolter.

4. The minimum quantity of air reaching the last open crosscut in any pair or set of developing entries or rooms shall be 12,000 CFM.

5. The minimum quantity of air reaching the intake end of a pillar line shall be 12,000 CFM.

6. Methane examinations will be made by a qualified person at the face, who will not go inby permanent or temporary roof support where applicable.

B. METHANE CONTROL OUTBY AREAS

1. The methane content in any return aircourse other than an aircourse returning the air from a working section (as provided in Section 75.309 and 75.310) shall not exceed 2.0 volume per centum. The methane content in air in active workings shall be less than 1.0 volume per centum.

2. Bleeder systems will not be used, abandoned areas will be ventilated or sealed. Approval has been received from the district manager to operate in this manner.

3. Abandoned areas will be sealed in accordance with Section 75.330, 30 CFR, or permission to ventilate the area requested from the District Manager in accordance with Section 75.329-1, 30 CFR.

IV. MISCELLANEOUS

A. DIESEL EQUIPMENT

1. Any diesel equipment used in or inby the last open crosscut shall comply with Title 30, Part 36 of the CFR.

2. All diesel equipment shall be operated and maintained in accordance with the manufacturers operating and maintenance manual. These manuals and specifications shall be made available for reference.

3. Each diesel equipment unit shall be examined on a daily basis to insure that the engine and scrubber system are operating properly to minimize poisonous exhaust gases. Additionally, the exhaust of each unit shall be examined to insure compliance with Section 75.301-2, 30 CFR, regarding current threshold limit values for any poisonous or noxious gas except carbon dioxide.

On working sections using diesel equipment an examination shall be made for any poisonous or noxious gases in the immediate return of each split

to determine compliance of Section 75.301-2, 30 CFR. The examination shall be made approximately 30 minutes after normal operations have begun but no longer than 1 hour after start up.

Similarly, any other diesel equipment working in an outby area, other than haulage equipment working on main intakes, shall have an examination made for any poisonous or noxious gases immediately down wind from the working area during the time period as detailed above.

A record of each examination and maintenance check shall be kept in a book for that purpose which shall include the date, time, examination or maintenance check results, and samplers initials.

A minimum of 150 CFM/HP will be maintained over each unit of diesel equipment.

B. ROOF BOLTING

1. 3,000 CFM will be maintained at the roof bolter and the curtain will be maintained within 20' of the face or within 5' of the cab, while bolting is in progress.

2. Dust collection will be maintained when drilling. Both dry suction and water will be used to suppress dust.

C. PRE-SHIFT EXAMINATIONS

1. Intake air which passes by seals and is used to ventilate active areas shall be examined in accordance with Section 75.303, 30 CFR.

V. DUST CONTROL

A. OUTBY AREAS

1. The following dust control practices shall be adhered to at the indicated locations:

   a. Transfer Points- Clean and rock dust as needed, water sprays will be added if sampling indicates they are necessary.

   b. Loading Points- Clean and Rockdust as needed.

c. Underground Crushers- Water sprays and rockdust

d. Underground dump- N/A

e. Beltlines- clean and rockdust as needed.

f. Haulways- maintained in a damp and well compacted condition.

B. FACE AREAS

1. Dust from cutting or roof drilling will be suppressed with water or suction and filter.

C. Designated Areas- Not Applicable

VI. UPDATED MINE MAP

Three copies are submitted with this plan.

DUST CONTROL PRACTICES IN THE FACE AREA

Date 5/14/85

Mine Name: Crandall Canyon No.1

Mine ID No.: 42-01715

MMU ID No.: 002-0

Type of Mining Equipment:

Continuous Miner - electric
Shuttle car - diesel or electric

Designated Occupation (D.O): 036

The following parameters are hereby adopted as part of the ventilation system and methane and dust control plan as per section 75.316, 30 CFR.

Signature Company Official

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The minimum quantity of air reaching the working face or longwall shall be 6,000 CFM.

The following water suppression system shall be maintained and operated as follows:

Equipment Description	No. of Sprays	Type of Sprays	Min. Operating Pressure
Joy 12 CM Miner	32	Joy	75 psi

At least 90% of the sprays indicated for dust suppression on each piece of equipment shall be maintained in an operable condition.

DUST CONTROL PRACTICES IN THE FACE AREA

Date 3/30/87

Mine Name: Crandall Canyon No. 1

Mine ID No.: 42-01715

MMU ID No.: 003-0

EQUIPMENT: JOY 12CM3 SERIAL # JM2398CM3

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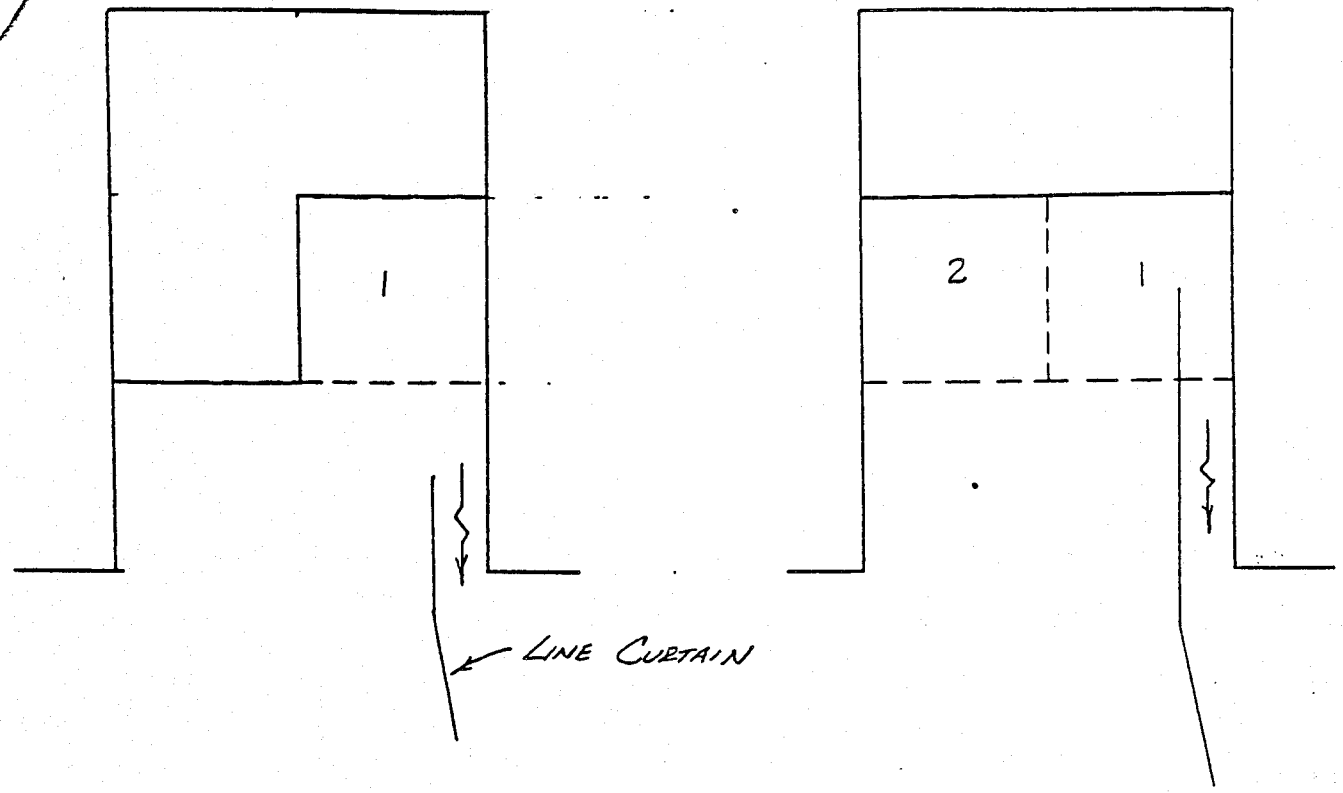
The minimum air quantities reaching an idle face will be perceptible air movement to maintain the methane content below 1%.

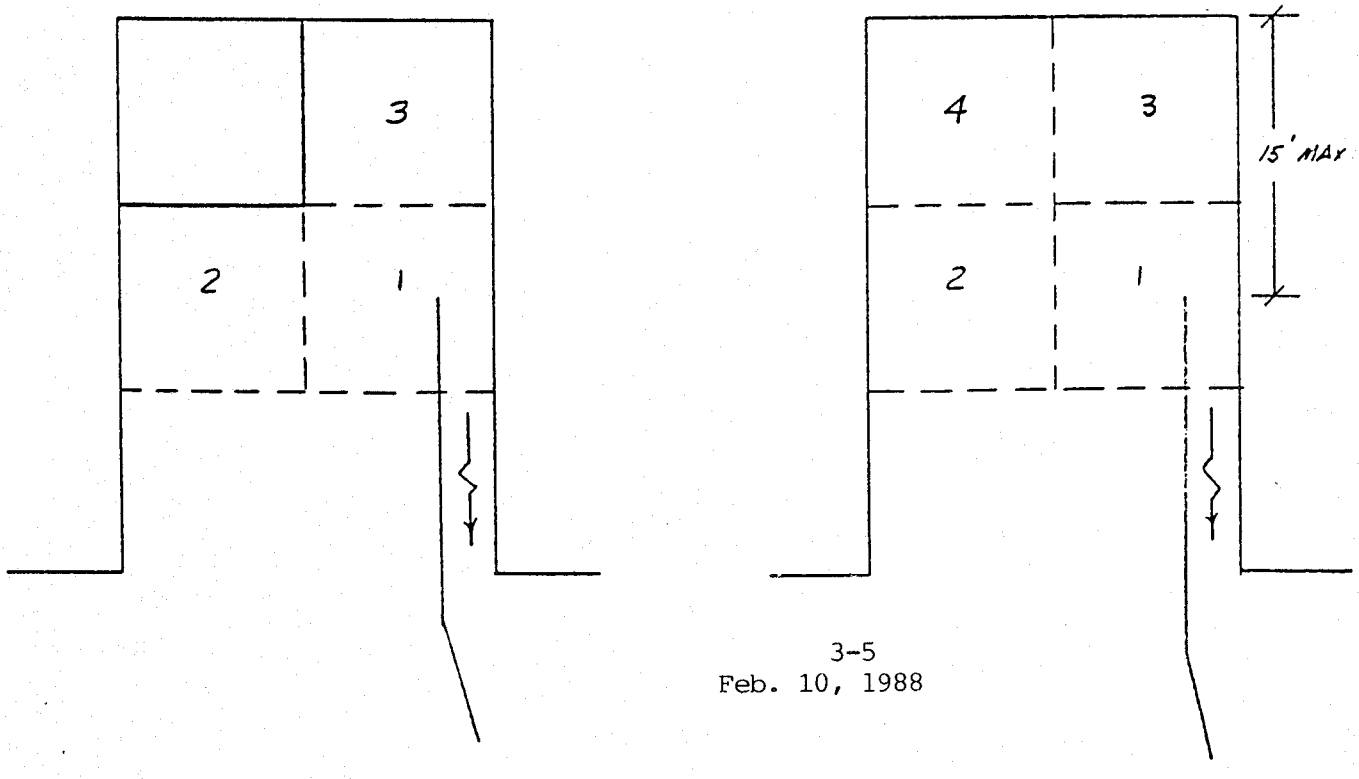
Ventilating devices will be within 20' of an idle face.

5/85 SUBJECT MINING SEQUENCE
FACE AREA - ADVANCE
VENTILATION

SHEET NO. 1 OF 2
JOB NO.
SCALE 1" = 10'

ALL ROOF CONTROL PRECAUTIONS WILL BE FOLLOWED AS OUTLINED IN ROOF CONTROL PLAN.



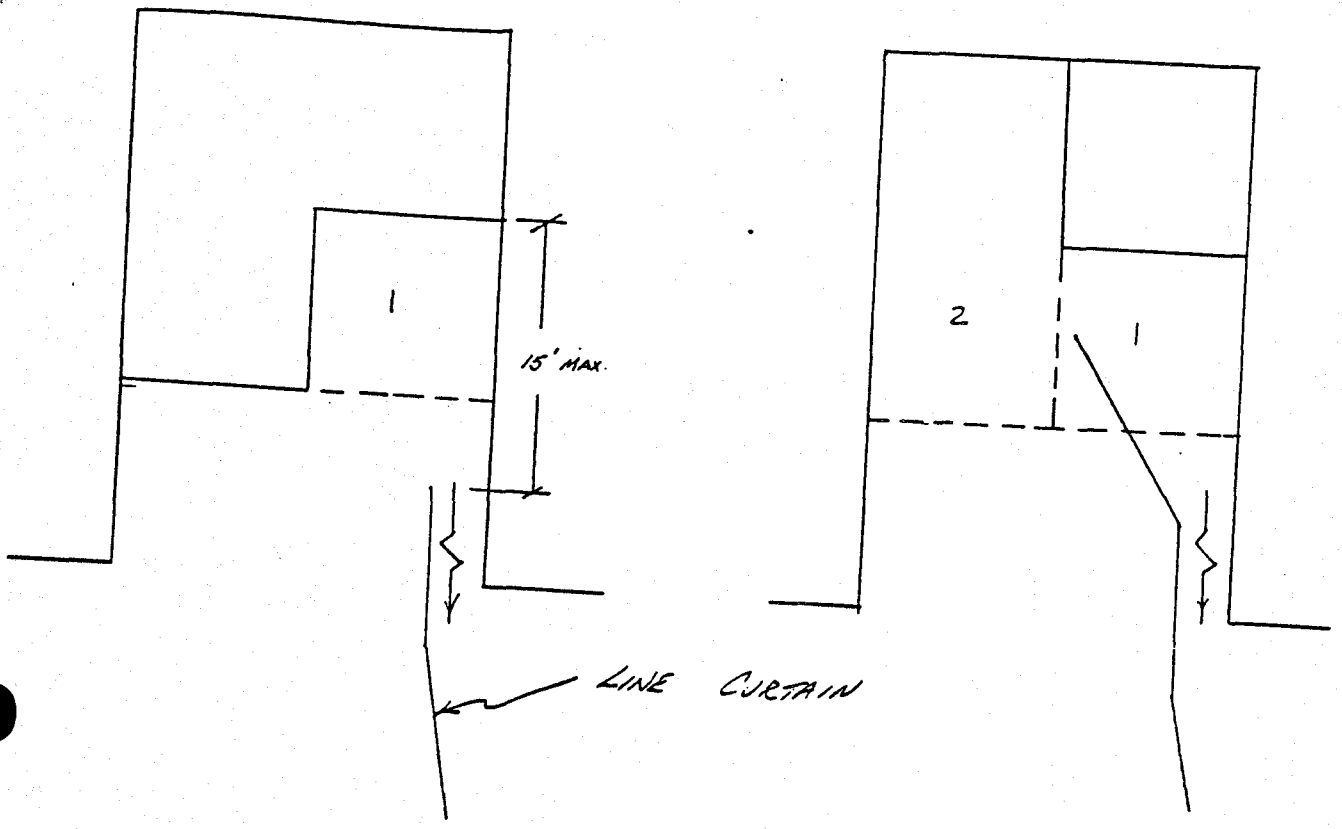


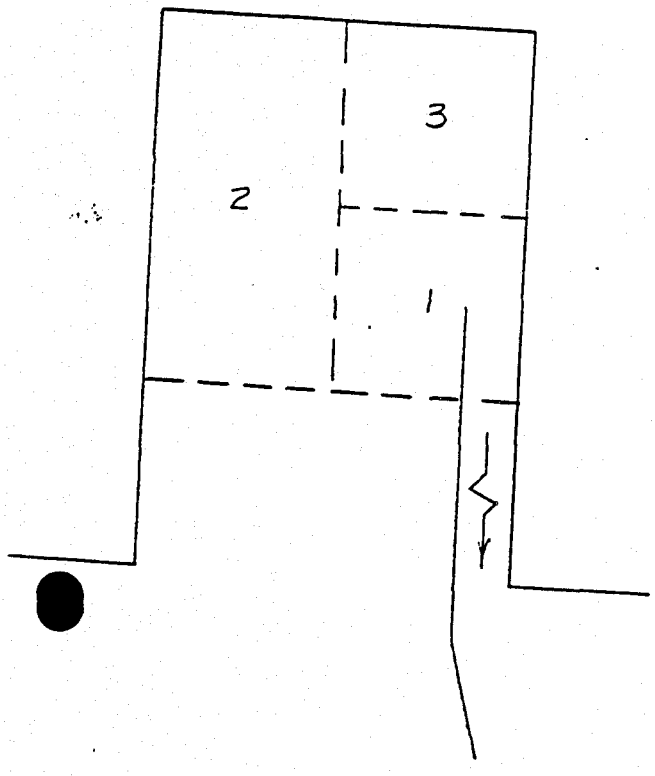
A

SUBJECT MINING SEQUENCE
FACE AREA - ADVANCE
VENTILATION

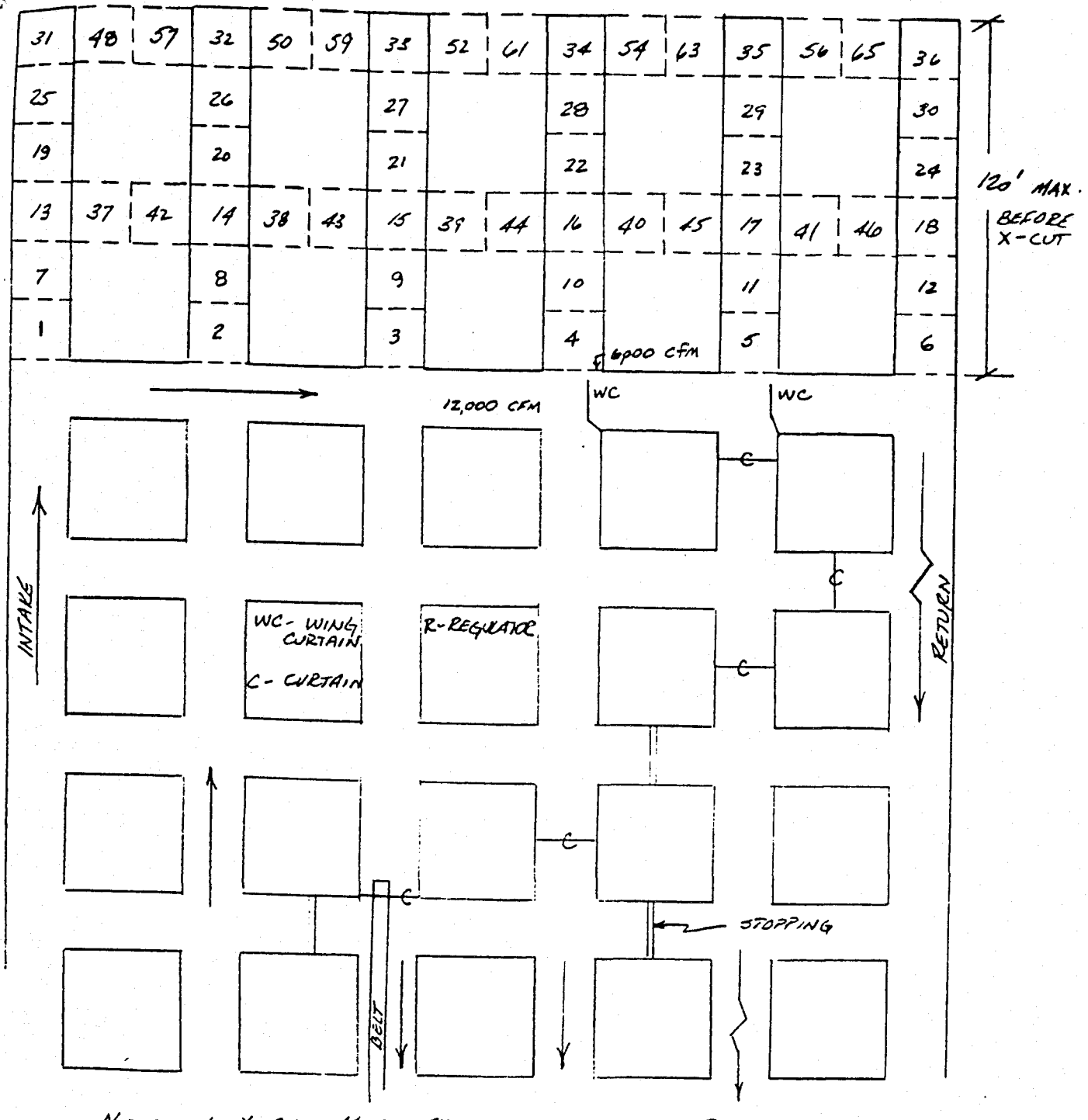
SHEET NO. 2 OF 2
JOB NO.
SCALE 1"=10'

ROOF CONTROL PRECAUTIONS WILL BE FOLLOWED AS OUTLINED IN ROOF CONTROL PLAN.





GRANDALL CANYON MINE
TYPICAL FACE ADVANCE SEQUENCE



NOTES: 1 X-CUT MAYBE TURNED AND COMPLETED PRIOR TO REACHING 120' IF ON SMALLER CENTERS

2 120' WILL BE MAX. PENETRATION BEFORE X-CUT IS COMPLETED.

SCALE: 1" = 50'

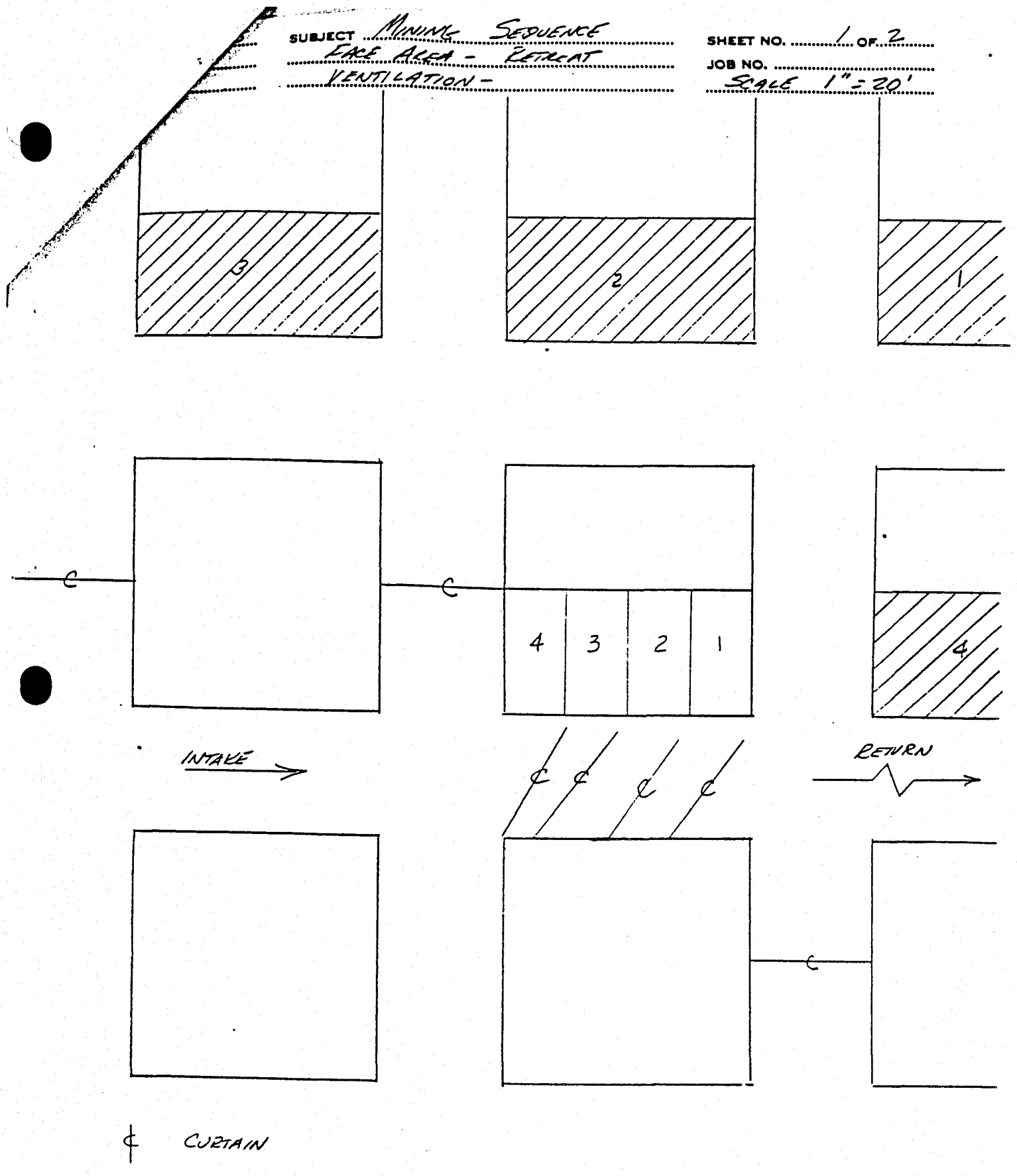
DATE: 8/10/85

DRWG: B

SHEET 1 OF 1

SUBJECT Mining Sequence
Face Area - Retreat
Ventilation -

SHEET NO. 1 OF 2
JOB NO.
Scale 1" = 20'



℄ CURTAIN

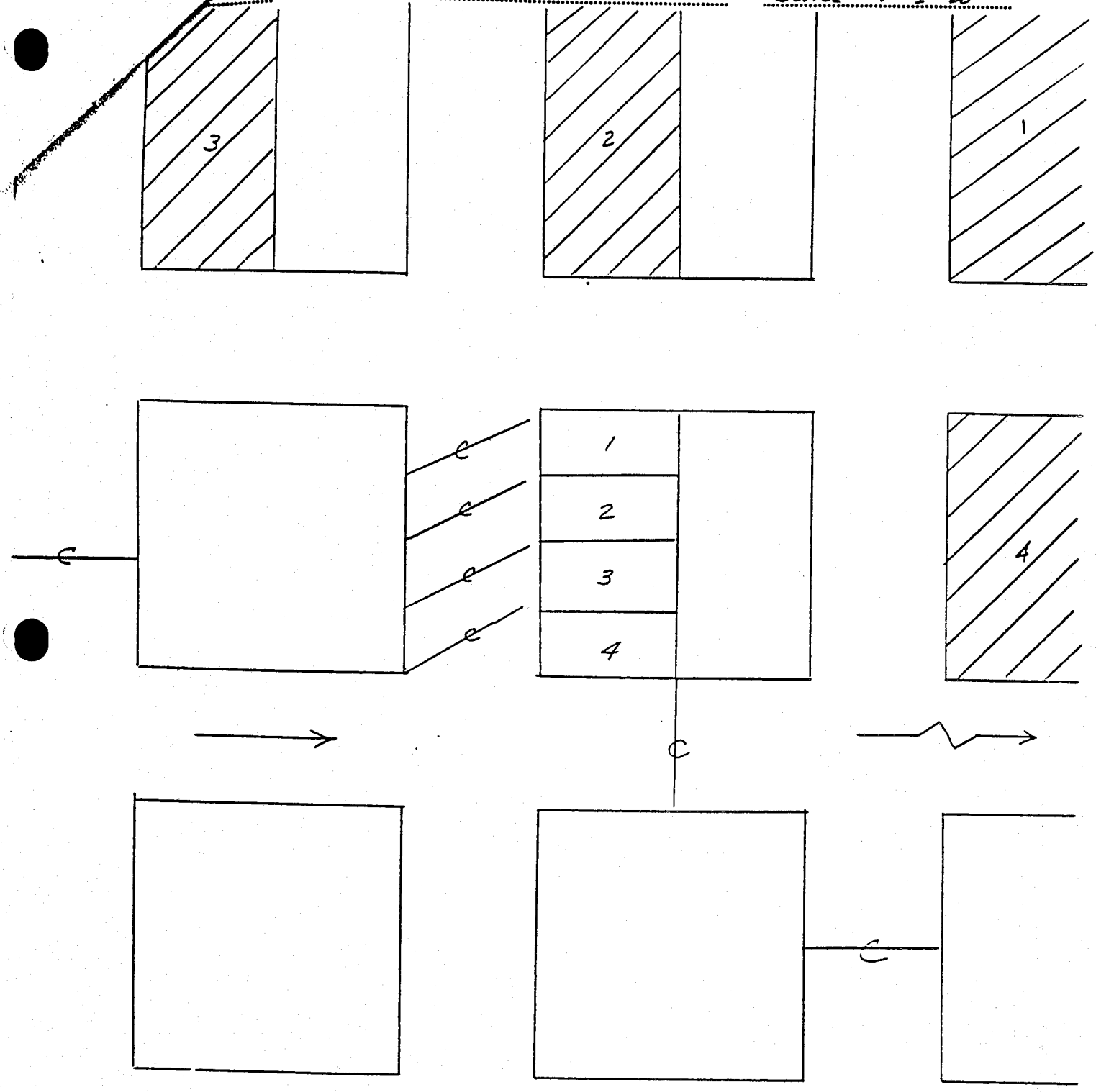
NOTE: MINING MAY PROCEED FROM EITHER SIDE

SUBJECT MINING SEQUENCE
FACE AREA - RETREAT
DRAWING B1

SHEET NO. 2 OF 2

JOB NO.

SCALE 1" = 20'

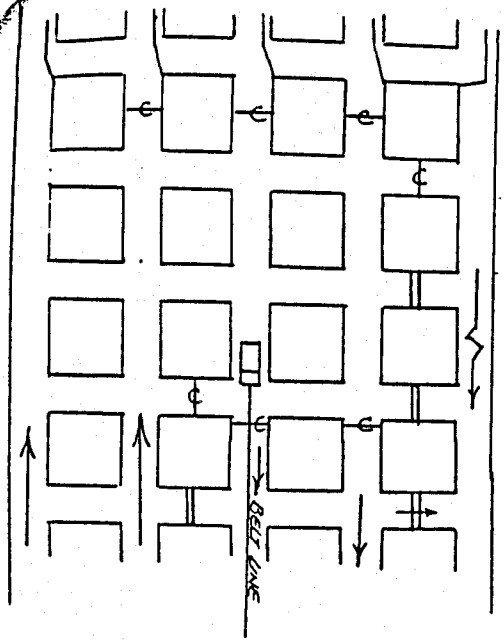


NOTE: MINING MAY PROCEED FROM EITHER SIDE

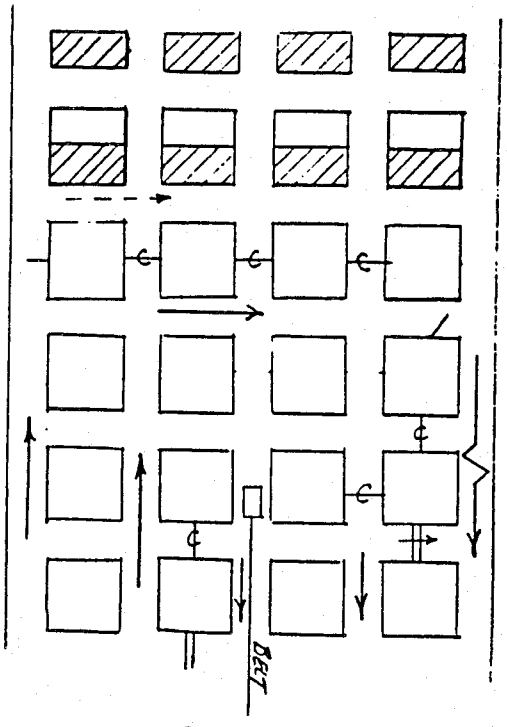
SUBJECT MINING SEQUENCE SECTION - VENTILATION (TYPICAL)

SHEET NO. 1 OF 1

JOB NO. DRAWING C



ADVANCE



RETREAT

SECTION WIDTH REDUCED FOR ILLUSTRATION PURPOSES

¢	CURTAINS
‖	STOPPING
↓	INTAKE AIR
≀↓	RETURN AIR

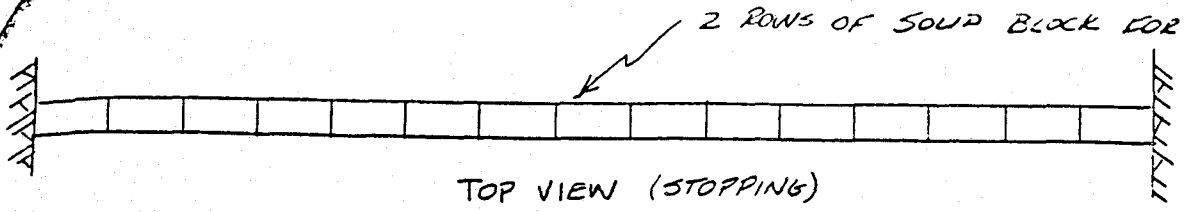
NOTE
1. AIR MAY BE DESIGNED IN A MIRROR IMAGE TO SHOWN
2. MINING MAY PROCEED FROM EITHER SIDE
3. ROOF CONTROL AS SPECIFIED IN ROOF CONTROL PLAN
4. DOORS WILL BE INSTALLED ACCORDING TO 30 CFR
5. NO BLEEDER SYSTEM

C

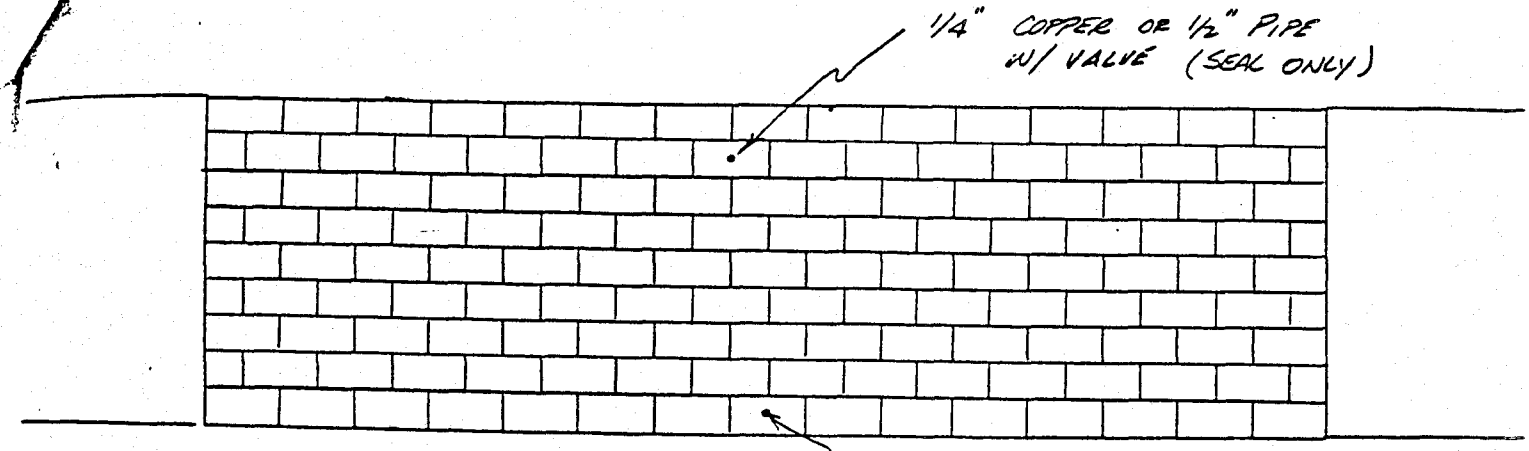
5/85 SUBJECT STOPPING & SEAL SHEET NO. 1 OF 1

TE JOB NO.

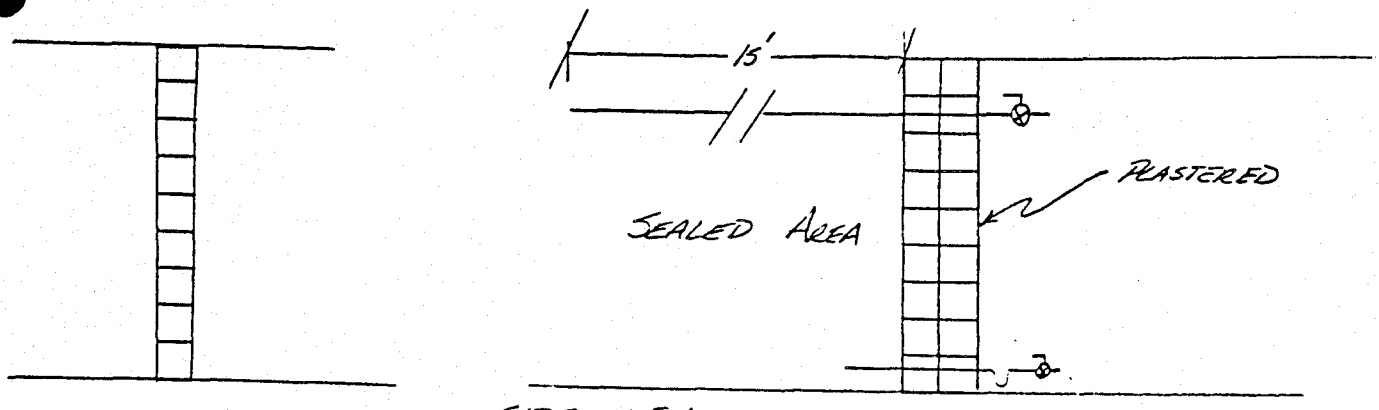
DRAWING D 1" ≈ 3.3'



TOP VIEW (STOPPING)



FRONT VIEW



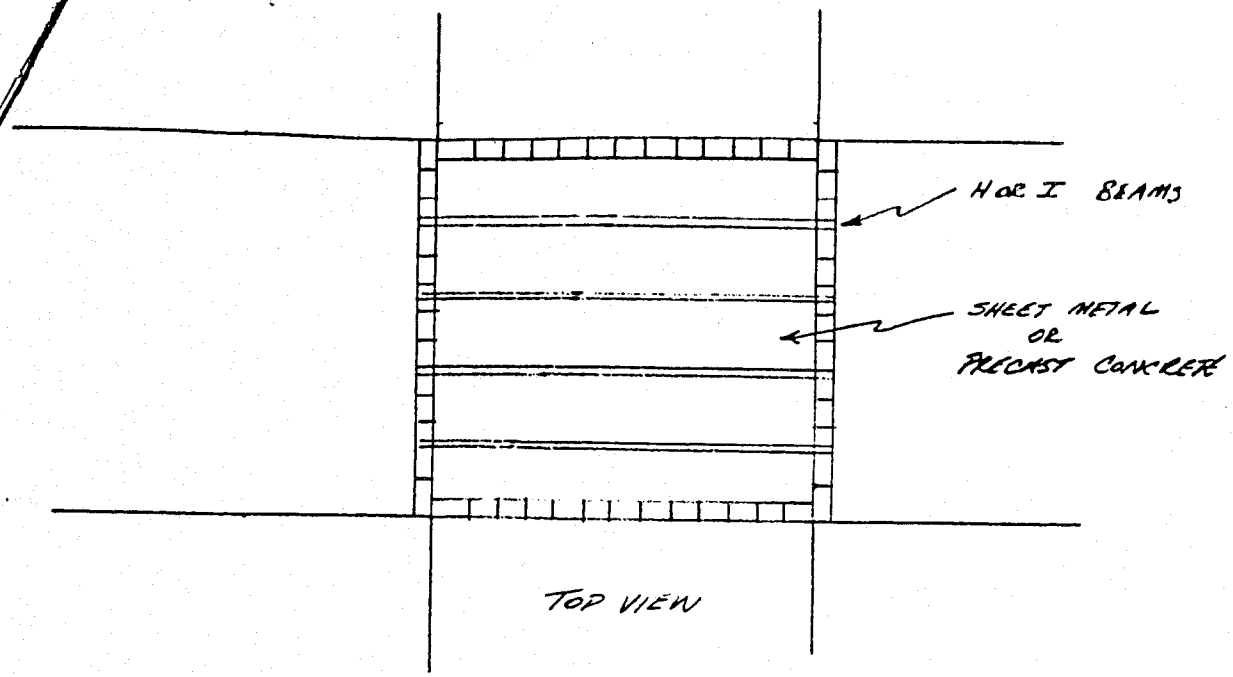
SIDE VIEW

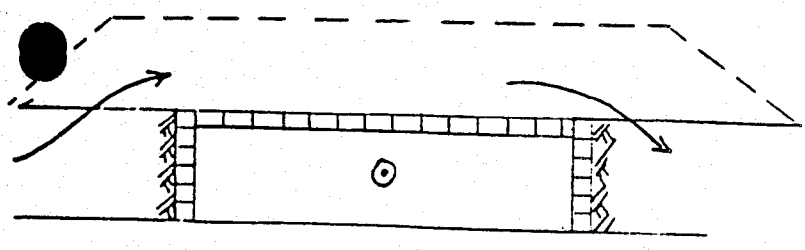
STOPPING

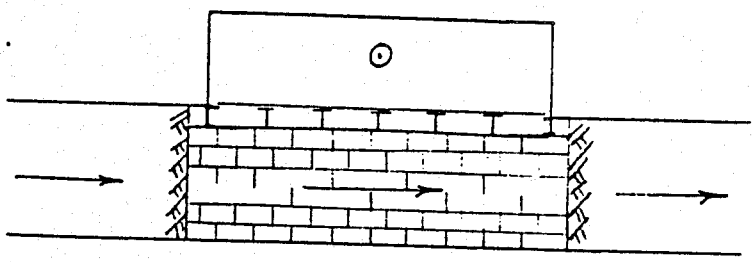
- MORTARED JOINTS
- DRY STACKED & PLASTERED AS REQUIRED BY PLAN
- 8"x8"x16" HOLLOW BLOCK

SEAL

- MORTARED JOINTS
- DOUBLE ROW
- SOLID BLOCKS
- 8"x8"x16"
- PLASTERED FRESH AIR SIDE



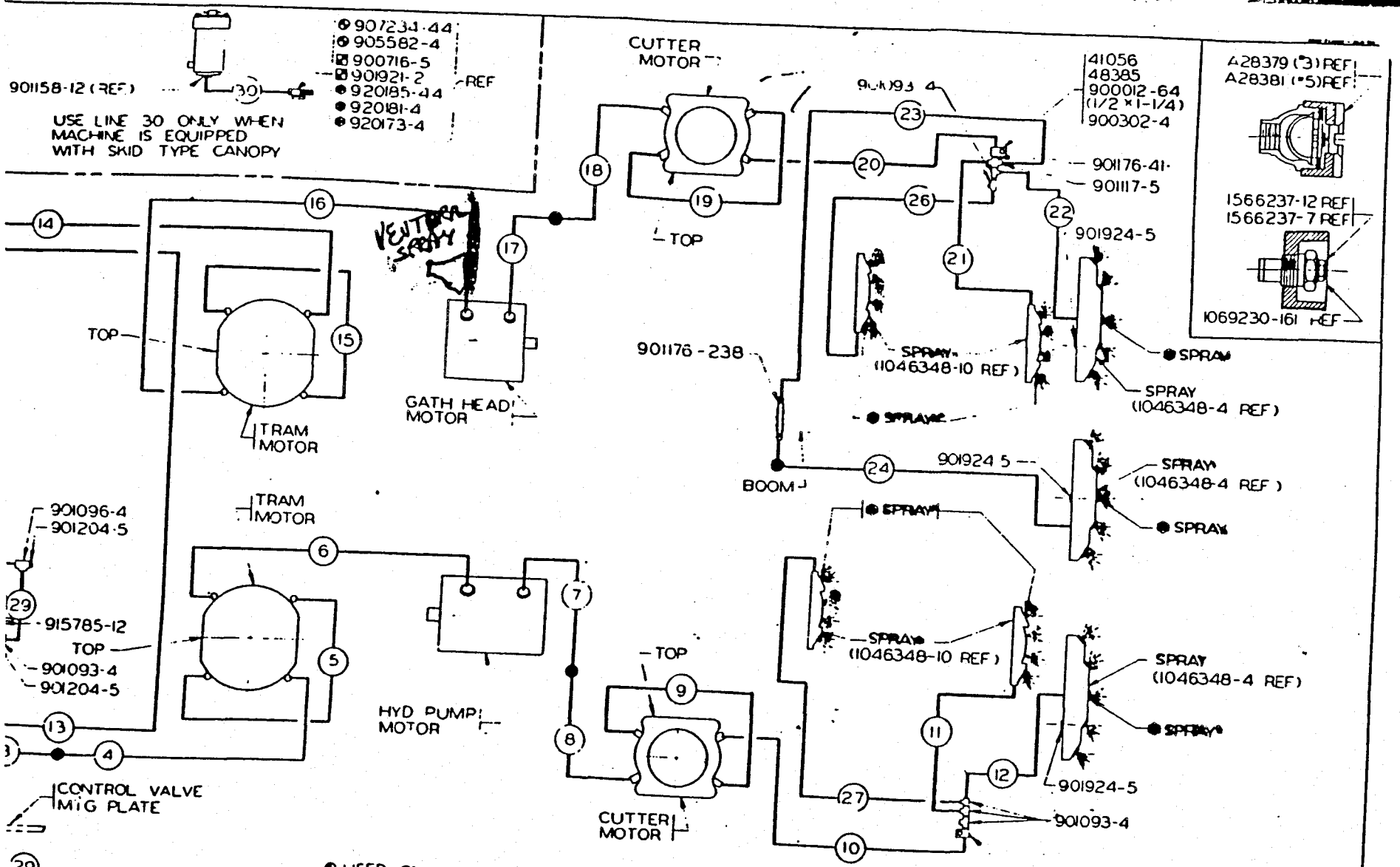




SCALE 1" = 10'

TYPICAL OVERCAST & UNDERCAST
CRANDALL CANYON MINE
GENWAL COAL COMPANY

DRWG: E


901158-12 (REF)
30
USE LINE 30 ONLY WHEN MACHINE IS EQUIPPED WITH SKID TYPE CANOPY
907234-44
905582-4
900716-5
901921-2
920185-44
920181-4
920173-4
REF
CUTTER MOTOR
TOP
18
19
16
14
17
15
TOP
TRAM MOTOR
GATH HEAD MOTOR
901176-238
BOOM
23
20
26
22
21
24
41056
48385
900012-64
(1/2 x 1-1/4)
900302-4
901176-41
901117-5
901924-5
SPRAY
(1046348-10 REF)
SPRAY
(1046348-4 REF)
A28379 (*3) REF
A28381 (*5) REF
1566237-12 REF
1566237-7 REF
1069230-161 REF
901096-4
901204-5
29
915785-12
TOP
901093-4
901204-5
TRAM MOTOR
6
5
7
HYD PUMP MOTOR
TOP
9
8
CUTTER MOTOR
11
12
27
10
13
4
CONTROL VALVE MTG PLATE
29
● USED ON JIC BM'S ONLY
■ USED ON MPT BM'S ONLY
◆ USED ON STECKO BM'S ONLY
● SEE SALES ORDER FOR SPRAY NO
A28379 No. 3 SIZE
◑ LOCATE AND WELD
JOY MANUFACTURING CO.
WATER PIPING DIAGRAM